

WHAT IS CLAIMED IS:

1. A semiconductor device comprising:
a capacitor electrode formed on a semiconductor substrate;
an insulating film which is formed on said capacitor electrode, which
has a trench exposing part of said capacitor electrode and which has an
5 upper surface; and
a wiring layer which is filled in inside of said trench, which has an
upper surface and which is connected to said capacitor electrode,
wherein the upper surface of said wiring layer is located on
approximately the same plane as the upper surface of said insulating film.
2. The semiconductor device according to claim 1, which further
comprising:
a conductive region located below said insulating film, wherein a
contact hole which reaches to said conductive region, and another trench,
5 which is connected to said contact hole, are formed in said insulating film;
and
another wiring layer which is filled in inside of said other trench and
said contact hole.
3. The semiconductor device according to claim 2, wherein said
trench and said other trench in the insulating film are formed so as to
extend approximately in parallel.
4. The semiconductor device according to claim 2, wherein said
trench in the insulating film includes a plurality of aperture parts.
5. The semiconductor device according to claim 1, wherein said
wiring layer includes copper.
6. A method of manufacturing a semiconductor device comprising:
the step of forming a capacitor electrode on a semiconductor

substrate;

5 the step of forming an insulating film which has an upper surface on said capacitor electrode;

the step of forming a trench in said insulating film so as to expose part of said capacitor electrode;

10 the step of forming a conductive material film which fills in the inside of said trench and which extends to the upper surface of said insulating film;

the step of forming a wiring layer which includes said conductive material film which fills in the inside of said trench and which has the upper surface located on a approximately the same plane as the upper surface of said insulating film by removing said conductive material film located on the upper surface of said insulating film and by removing part of said conductive material film located in the trench of said insulating film.

7. The method of manufacturing a semiconductor device according to claim 6 further comprising:

the step of forming a conductive region located below said insulating film; and

5 the step of forming, in said insulating film, a contact hole which reaches to said conductive region,

wherein said step of forming a trench includes forming another trench in said insulating film in the region located above said contact hole; and

10 said step of forming a conductive material film includes forming a conductive material film which becomes another wiring layer so as to fill in the inside of said contact hole and said other trench.

8. The method of manufacturing a semiconductor device according to claim 7, wherein said step of forming a trench includes forming said trench so as to extend approximately in parallel to said other trench.

9. The method of manufacturing a semiconductor device according

to claim 7, wherein said step of forming a trench includes forming a plurality of aperture parts so as to expose part of said capacitor electrode in said insulating film.

10. The method of manufacturing a semiconductor device according to claim 6, wherein said conductive material film includes copper.